**PATENT** 

# THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Group Art Unit:

2699

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RECEIVED

**Group 2600** 

John C. Harvey and James W. Cuddihy:

08/447,712

Examiner:

Filed:

Serial No.:

May 23, 1995

Atty Dkt:

05634.0127

Luther, W.

For: SIGNAL PROCESSING APPARATUS AND METHODS

#### **Information Disclosure Statement**

**Assistant Commissioner for Patents** Washington, D.C. 20231

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Where the publication date of a listed document does not provide a month of publication. the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith. It is further understood that the Examiner will consider information that had been cited by or submitted to the U.S. Patent and Trademark Office in a prior application relied on under 35 U.S.C. § 120. 1138 OG 37, 38 (May 19, 1992).

Applicants have checked the appropriate boxes below.

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- [ ] 1. This Information Disclosure Statement is being filed within three months of the U.S. filing date OR before the mailing date of a first Office Action on the merits. No statement under 37 C.F.R. § 1.97(e) or fee is required. 37 C.F.R. § 1.97(b).
- [X] 2. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection or Notice of Allowance. 37 C.F.R. § 1.97(c).
  - [ ] a. I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
  - I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to my knowledge after making reasonable inquiry, no item of information contained in this Information Disclosure Statement was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
  - [X] c. Attached is our Check No. 3437 in the amount of \$180.00 in payment of the fee under 37 C.F.R. § 1.17(p).

[ ] 3. This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. It is hereby requested that the Information Disclosure Statement be considered. Attached is our Check No. 3437 in the amount of \$180.00 in payment of the fee under 37 C.F.R. § 1.17(i). 37 C.F.R. § 1.97(d).

(s

- I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
- I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to my knowledge after making reasonable inquiry, no item of information contained in this Information Disclosure Statement was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- [ ] c. An accompanying petition requesting consideration of this Information Disclosure Statement and the petition fee set forth in 37 C.F.R. § 1.17(i) are included with this communication. 37 C.F.R. § 1.97(d)(2) & (3).
- [ ] 4. Relevance of the non-English language document(s) is discussed in the present specification. 37 C.F.R. § 1.98(a)(3).
- [X] 5. A concise explanation of the relevance of the non-English language document(s) appears below in Appendix A. 37 C.F.R. § 1.98(a)(3).
- [X] 6. Some documents were cited in corresponding foreign applications.
- [X] 7. The Examiner's attention is directed to Applicants' co-pending U.S. Patent Applications that are directed to related technical subject matter. The identification of this U.S. Patent Application is not to be construed as a waiver of secrecy as to that application now or upon issuance of the present application as a patent. The Examiner is respectfully requested to consider the cited application

and the art cited therein during examination. 37 C.F.R. § 1.98(d). Attached hereto is Appendix B listing Applicants' related applications, and Appendix C that lists the prior art previously cited by the PTO in those applications.

[X] 1. Copies of the documents were cited by or submitted to the Office in Applicants' Applications listed in Appendix D which are relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d). Applicants submit Appendix E which contains a list of all references not hereto previously cited in the instant application.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, and to indicate in the official file wrapper of this patent application that the documents have been considered.

A single set of copied references required by 37 C.F.R. § 1.98(a) have been submitted in conjunction with this communication in Applicant's application number 08/113,329 in compliance with the PTO's instructions in the First Office Action of the above referenced application.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 50-0206.

Respectfully submitted,

Date: May 11, 2001 HUNTON & WILLIAMS 1900 K Street, NW,

12<sup>th</sup> Floor

Washington, D.C. 20006

Thomas J. Scott, Jr. Registration No. 27,836

Donald J. Lecher

Registration No. 41,933 Attorneys for Applicants

Tel: (202) 955-1938

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For: SIGNAL PROCESSING APPARATUS AND METHODS

#### TRANSMITTAL LETTER

#### **BOX:** Fee Amendement

Assistant Commissioner of Patents Washington, D.C. 20231

Applicants include in this communication:

- [X] Information Disclosure Statement;
- [X] PTO Form 1449;
- [X] Check No. 3437 for \$180.00;
- [X] Appendices A-E;
- [X] The Commissioner is hereby authorized to charge any additional fees, or credit any overpayment to Deposit Account No. 50-0206.
  - [x] Any filing fees under 37 CFR 1.16 for the presentation of extra claims.
  - [x] Any patent application processing fees under 37 CFR 1.17.

Date: May 11, 2001

**HUNTON & WILLIAMS** 

1900 K Street, NW,

12<sup>th</sup> Floor

Washington, D.C. 20006

Respectfully submitted,

Thomas J. Scott, Jr. Registration No. 27,836

Donald J. Lecher

Registration No. 41,933 Attorneys for Applicants

Tel: (202) 955-1938

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**CITATION FORM** 

Attorney Docket No.

Serial No.

RECTIVED

08/447,712

05634.0127 Applicant(s)

John C. Harvey and James W. Cuddihy

Group 2600

Filing Date May 23, 1995 Group Art Unit 2699

UNITED STATES PATENT DOCUMENTS

EXAMINER	PATENT	PATENT		CLASS/	FILING
INITIAL	NUMBER	DATE	NAME	SUBCLASS	DATE*
	1,927,702	September 19, 1933	Foss	705/36	December 3, 1932
	2,511,085	June 13, 1950	Smith	381/104	November 15, 1946
	2,573,349	October 30, 1951	Miller et al.	725/14	December 9, 1949
	2,769,023	October 30, 1956	Loew et al.	725/143	January 19, 1950
	2,788,387	April 9, 1957	Druz	380/320	October 2, 1951
	2,864,865	December 16, 1958	Morris	568/430	May 4, 1955
	2,866,962	December 30, 1958	Ellet	380/227	December 6, 1955
	2,969,427	January 24, 1961	See	348/705	May 27, 1957
	3,008,000	November 7, 1961	Morchand	725/138	September 11, 1958
	3,016,091	January 9, 1962	Daniele	162/391	August 11, 1960
	3,071,642	January 1, 1963	Mountjoy et al.	725/151	February 21, 1957
	3,213,201	October 19, 1965	Flood et al.	370/381	July 2, 1962
	3,238,297	March 1, 1966	Pawley et al.	380/240	July 8, 1951
	3,244,806	April 5, 1966	Morris	725/151	January 30, 1962
	3,363,250	January 9, 1968	Jacobson	340/825.17	July 20, 1965
	3,371,071	February 27, 1968	Webb	428/355EN	January 18, 1965
	3,387,268	June 4, 1968	Epstein	340/825.26	September 9, 1963
	3,531,583	September 29, 1970	Walker	380/230	July 28, 1966
	3,531,586	September 29, 1970	Bass et al.	725/151	April 19, 1965
	3,536,833	October 27, 1970	Guanella	380/28	July 8, 1965
	3,569,937	March 9, 1971	Hoetter	340/825.75	November 6, 1968
	3,573,747	April 6, 1971	Adams et al.	705/37	February 24, 1969
	3,586,767	June 22, 1971	Morchand	348/473	June 4, 1968
	3,586,771	June 22, 1971	Hamburger et al.	725/1	October 25, 1968
	3,601,528	August 24, 1971	McVoy	724/143	June 16, 1969
	3,606,688	April 24, 1971	Zawels et al.	434/323	July 11, 1969
	3,609,697	September 28, 1971	Blevins et al.	717/2	October 21, 1968
	3,627,914	December 14, 1971	Davies	348/722	September 4, 1969
	3,648,270	March 7, 1972	Metz et al.	345/24	August 11, 1969
	3,657,699	April 18, 1972	Rocher et al.	380/265	June 30, 1970
	3,659,046	April 5, 1972	Angeleri et al.	380/43	May 13, 1969
	3,676,580	July 11, 1972	Beck	725/16	June 1, 1970
	3,693,090	September 29, 1972	Gabriel	725/1	August 8, 1969
	3,703,684	November 21, 1972	McVoy	725/16	June 25, 1971
	3,716,835	February 13, 1973	Weinberg	340/825.27	March 19, 1971
	3,725,672	April 3, 1973	Reuter	327/176	July 30, 1971

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Serial No. 08/447,712 Docket No. 5634.0127

# Group 2600

EXAMINER	PATENT <sub>TRADE</sub>	PATENT DATE	NAME	CLASS/	FILING
INITIAL	3,729,581	April 24, 1973	Anderson	348/640	DATE* September 3, 1973
	3,731,197	May 1, 1973	Clark	380/36	December 15, 1969
	3,736,369	May 29, 1973	Vogelman et al.	380/228	March 13, 1972
	3,744,043	July 3, 1973	Walden et al.	340/870.7	June 1, 1971
	3,746,780	July 17, 1973	Stetten et al.	386/95	February 25, 1971
	3,749,845	July 31, 1973	Fraser	370/433	August 27, 1971
	3,754,211	August 21, 1973	Rocher et al.	714/749	December 30, 1971
	3,755,624	August 28, 1973	Sekimoto	348/495	April 22, 1971
	3,757,225	September 4, 1973	Ukicki	725/1	March 16, 1972
	3,761,888	September 25, 1973	Flynn	710/18	August 3, 1972
	3,773,977	November 20, 1973	Guanella	380/36	June 21, 1971
	3,777,053	December 4, 1973	Wittig et al.	380/228	May 16, 1972
	3,789,137	January 29, 1974	Newell	386/98	<del>                                      </del>
	3,798,359	March 19, 1974	Feistel	380/37	April 7, 1972 June 30, 1971
	3,798,610	March 19, 1974	Bliss et al	709/236	December 20, 1972
	3,806,814	April 23, 1974	Forbes	725/119	April 26, 1972
	3,819,852	June 24, 1974	Wolf	<del></del>	
	3,824,332	July 16, 1974	Horowitz	348/478 380/222	August 29, 1972
	3,824,467	July 16, 1974	French	380/35	February 18, 1972  December 1, 1972
	3,825,893	July 23, 1974	Bossen et al.	714/757	
	3,833,757	September 3, 1974	Kirk, Jr. et al.	725/144	May 29, 1973
	3,835,387	September 10, 1974	Rookes et al.	725/144	April 10, 1972
	3,842,196	October 15, 1974	Loughlin.	348/486	November 15, 1972  November 12, 1973
	3,845,391	October 29, 1974	Crosby	455/39	
		<del></del>	Takezawa et al.		July 15, 1971
	3,859,458 3,882,392	January 7, 1975 May 6, 1975	Harney	348/24 725/79	August 30, 1973
	3,890,461	June 17, 1975	Vogelman et al.	380/228	January 29, 1973 March 27, 1973
	3,891,792	June 24, 1975	Kimura	348/622	<del></del>
	3,893,031	July 1, 1975	Majeau et al.	380/274	June 25, 1974 November 8, 1972
	3,894,176	July 8, 1995	Mellon	380/230	178/5.1
	3,899,633	August 12, 1975	Sorenson et al.	380/207	May 12, 1972
	3,909,512	September 30, 1975	Omori et al.	386/75	October 5, 1973
	3,911,216	October 7, 1975	Bartek et al.	380/46	December 17, 1973
	3,911,419	October 7, 1975	Bates et al.	345/162	November 23, 1973
	3,914,534	October 21, 1975	Forbes	380/220	October 29, 1973
	3,916,091	October 28, 1975	Kirk, Jr. et al.	380/242	January 31, 1973
	3,919,462	November 11, 1975	Hartung et al.	380/235	August 15, 1973
	3,921,151	November 18, 1975	Guanella	380/36	July 12, 1973
	3,922,482	November 25, 1975	Gabriel et al.	725/31	August 20, 1971
	3,934,079	January 20, 1976	Barnhart	725/131	October 26, 1973
	3,936,593	February 3, 1976	Aaronson et al.	380/219	August 5, 1974
	3,936,594	February 3, 1976	Schubin et al.	380/238	August 5, 1974  August 5, 1974
	3,944,931	March 16, 1976	Usami et al.	455/192.2	November 14, 1974
	3,949,313	April 6, 1976	Tamada et al.	341/50	May 28, 1974
	3,956,615	May 11, 1976	Anderson et al.	705/72	June 25, 1974
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NUMBER   SUBCLASS   DATE   3,970,790   PAN   July 20, 1976   Guanella   380/36   March 7, 1974   3,978,449   August 31, 1976   Sanders et al.   714/823   January 27, 1975   3,987,398   October 19, 1976   Fung   725/127   July 5, 1974   3,988,528   October 26, 1976   Yanagimachi et al.   348/24   August 27, 1973   3,990,050   November 2, 1976   Kolettis et al.   710/23   September 25, 1974   3,993,955   November 23, 1976   Belcher et al.   725/33   April 25, 1975   3,997,718   December 14, 1976   Ricketts et al.   725/31   February 28, 1975   4,008,369   February 15, 1977   Theurer et al.   725/3   February 28, 1975   4,024,574   May 17, 1977   Nieson   380/232   February 26, 1975   4,025,947   May 24, 1977   Michael   348/705   May 28, 1974   4,048,619   September 13, 1977   Forman, Jr. et al.   370/485   September 17, 1976   4,049,906   September 20, 1977   Robertson et al.   725/138   July 9, 1976   4,052,737   October 4, 1977   Robertson et al.   725/138   July 9, 1976   4,058,830   November 15, 1977   Gulnet et al.   380/212   June 3, 1976		MAI				
3,987,398 October 19, 1976 Fung 725/127 July 5, 1974 3,988,528 October 26, 1976 Yanagimachi et al. 348/24 August 27, 1973 3,990,050 November 2, 1976 Kolettis et al. 710/23 September 25, 1974 3,993,995 November 23, 1976 Belcher et al. 725/33 April 25, 1975 3,997,718 December 14, 1976 Ricketts et al. 725/114 November 25, 1975 4,002,574 May 17, 1977 Nieson 380/232 February 26, 1975 4,002,574 May 24, 1977 Michael 348/705 May 28, 1974 4,002,5947 May 24, 1977 Loshin 380/228 February 26, 1975 4,040,5947 May 24, 1977 Loshin 380/228 February 26, 1975 4,040,5948 May 24, 1977 Loshin 380/228 February 25, 1975 4,040,5948 May 24, 1977 Robertson et al. 370/485 September 17, 1976 4,040,619 September 31, 1977 Forman, Jr. et al. 370/485 September 17, 1976 4,049,906 September 20, 1977 Hafner et al. 178/2C April 21, 1976 4,052,337 October 4, 1977 Robertson et al. 380/212 June 3, 1976 4,056,830 November 15, 1977 Gulnet et al. 380/212 June 3, 1976 4,064,490 December 20, 1977 Nagel 709/227 September 10, 1975 4,064,490 December 20, 1977 Nagel 709/227 September 10, 1975 4,068,490 March 14, 1978 Siegle et al. 348/732 October 29, 1975 4,061,612 March 28, 1978 Miller 455/153. Doctober 29, 1975 4,091,417 May 23, 1978 Nieson 380/233 July 14, 1976 4,091,417 May 23, 1978 Nieson 380/233 July 14, 1976 4,091,417 May 23, 1978 Nieson 380/232 February 23, 1977 4,104,486 August 1, 1978 Gulnet et al. 380/241 September 13, 1976 4,112,662 September 19, 1978 Gulnet et al. 380/241 September 13, 1976 4,112,602 September 19, 1978 Gulnet et al. 380/241 September 13, 1976 4,115,602 September 19, 1978 Gulnet et al. 380/232 February 23, 1977 4,115,602 September 19, 1978 Gulnet et al. 380/241 September 13, 1976 4,115,602 September 19, 1978 Gulnet et al. 380/241 September 13, 1976 4,115,602 September 19, 1978 Gulnet et al. 380/240 April 11, 1977 4,115,607 September 19, 1978 Gulnet et al. 380/240 April 11, 1977 4,1562 September 19, 1978 Griant et al. 380/240 April 11, 1977 4,1562 September 19, 1979 Griant et al. 380/240 April 11, 1977 4,1563,300 Cotober 10, 1979	EXAMINER INITIAL	PATENT NUMBER	DATENT DATE	Group	<b>2600</b> SS/ SUBCLASS	FILING DATE*
3,987,398 October 19, 1976 Fung 725/127 July 5, 1974 3,988,528 October 26, 1976 Yanagimachi et al. 348/24 August 27, 1973 3,990,050 November 2, 1976 Kolettis et al. 710/23 September 25, 1974 3,993,995 November 23, 1976 Belcher et al. 725/33 April 25, 1975 3,997,718 December 14, 1976 Ricketts et al. 725/114 November 25, 1975 4,002,574 May 17, 1977 Nieson 380/232 February 26, 1975 4,002,574 May 24, 1977 Michael 348/705 May 28, 1974 4,002,5947 May 24, 1977 Loshin 380/228 February 26, 1975 4,040,5947 May 24, 1977 Loshin 380/228 February 26, 1975 4,040,5948 May 24, 1977 Loshin 380/228 February 25, 1975 4,040,5948 May 24, 1977 Robertson et al. 370/485 September 17, 1976 4,040,619 September 31, 1977 Forman, Jr. et al. 370/485 September 17, 1976 4,049,906 September 20, 1977 Hafner et al. 178/2C April 21, 1976 4,052,337 October 4, 1977 Robertson et al. 380/212 June 3, 1976 4,056,830 November 15, 1977 Gulnet et al. 380/212 June 3, 1976 4,064,490 December 20, 1977 Nagel 709/227 September 10, 1975 4,064,490 December 20, 1977 Nagel 709/227 September 10, 1975 4,068,490 March 14, 1978 Siegle et al. 348/732 October 29, 1975 4,061,612 March 28, 1978 Miller 455/153. Doctober 29, 1975 4,091,417 May 23, 1978 Nieson 380/233 July 14, 1976 4,091,417 May 23, 1978 Nieson 380/233 July 14, 1976 4,091,417 May 23, 1978 Nieson 380/232 February 23, 1977 4,104,486 August 1, 1978 Gulnet et al. 380/241 September 13, 1976 4,112,662 September 19, 1978 Gulnet et al. 380/241 September 13, 1976 4,112,602 September 19, 1978 Gulnet et al. 380/241 September 13, 1976 4,115,602 September 19, 1978 Gulnet et al. 380/232 February 23, 1977 4,115,602 September 19, 1978 Gulnet et al. 380/241 September 13, 1976 4,115,602 September 19, 1978 Gulnet et al. 380/241 September 13, 1976 4,115,602 September 19, 1978 Gulnet et al. 380/240 April 11, 1977 4,115,607 September 19, 1978 Gulnet et al. 380/240 April 11, 1977 4,1562 September 19, 1978 Griant et al. 380/240 April 11, 1977 4,1562 September 19, 1979 Griant et al. 380/240 April 11, 1977 4,1563,300 Cotober 10, 1979		3,970,790	TRAUE July 20, 1976	<del></del>		
3,987,398		3,978,449	August 31, 1976	Sanders et al.	714/823	
3,990,050   November 2, 1976   Kolettis et al.   710/23   September 25, 1974		3,987,398		Fung	725/127	
3,990,050   November 2, 1976   Kolettis et al.   710/23   September 25, 1974   3,993,955   November 14, 1976   Belcher et al.   725/33   April 25, 1975   3,997,718   December 14, 1976   Ricketts et al.   725/13   April 25, 1975   4,008,369   February 15, 1977   Theurer et al.   725/3   February 28, 1975   4,024,574   May 17, 1977   Nieson   380/232   February 28, 1975   4,025,947   May 24, 1977   Michael   348/705   May 28, 1974   4,025,948   May 24, 1977   Loshin   380/228   February 25, 1975   4,048,619   September 13, 1977   Forman, Jr. et al.   370/485   September 17, 1976   4,049,906   September 13, 1977   Forman, Jr. et al.   370/485   September 17, 1976   4,052,737   October 4, 1977   Robertson et al.   725/138   July 9, 1976   4,056,830   November 15, 1977   Gulnet et al.   380/212   June 3, 1976   4,064,940   December 20, 1977   Nagel   709/227   September 10, 1975   4,068,264   January 10, 1978   Pires   380/233   July 19, 1976   4,079,419   March 14, 1978   Siegle et al.   348/732   October 29, 1975   4,081,753   March 28, 1978   Halfner   4,091,417   May 23, 1978   Miller   455/158,2   December 13, 1976   4,091,417   May 23, 1978   Nieson   380/232   February 23, 1977   4,115,662   September 15, 1978   Gulnet et al.   380/241   May 11, 1977   4,115,662   September 19, 1978   Gulnet et al.   380/241   May 11, 1977   4,115,662   September 19, 1978   Gulnet et al.   380/241   May 11, 1977   4,115,662   September 19, 1978   Gulnet et al.   380/220   February 23, 1977   4,116,30,303   October 10, 1978   Johnstine   713/190   March 11, 1977   4,116,3063   December 19, 1978   Gulnet et al.   380/220   April 11, 1977   4,116,416,416   September 19, 1978   Gulnet et al.   380/220   April 11, 1977   4,116,507   September 19, 1978   Gulnet et al.   380/220   April 11, 1977   4,116,625   July 31, 1979   Barnes et al.   380/220   April 11, 1977   4,116,3083   December 19, 1978   Gulnet et al.   380/220   April 11, 1977   4,116,3096   September 18, 1979   Barnes et al.   380/230   November 17, 1977   4,116,3096		3,988,528	October 26, 1976	Yanagimachi et al.	348/24	
3,993,955   November 23, 1976   Belcher et al.   725/13   April 25, 1975		3,990,050	November 2, 1976	Kolettis et al.	710/23	
3,997,718   December 14, 1976   Ricketts et al.   725/114   November 11, 1974				Belcher et al.		
4,008,369   February 15, 1977   Theurer et al.   725/3   February 28, 1975		3,997,718				
4,024,574   May 17, 1977   Nieson   380/232   February 26, 1975		4,008,369	February 15, 1977	Theurer et al.	725/3	
4,025,947   May 24, 1977   Loshin   380/228   February 25, 1975		4,024,574		Nieson	380/232	
4,025,948         May 24, 1977         Loshin         380/228         February 25, 1975           4,048,619         September 13, 1977         Forman, Jr. et al.         370/485         September 17, 1976           4,049,906         September 20, 1977         Hafner et al.         178/2C         April 21, 1976           4,052,737         October 4, 1977         Robertson et al.         725/138         July 9, 1976           4,058,830         November 15, 1977         Gulnet et al.         380/212         June 3, 1976           4,064,490         December 20, 1977         Nagel         709/227         September 10, 1975           4,068,264         January 10, 1978         Pires         380/233         July 19, 1976           4,079,419         March 14, 1978         Siegle et al.         348/732         October 29, 1975           4,081,612         March 28, 1978         Hafner         370/393         July 14, 1976           4,081,753         March 28, 1978         Miller         455/152.         December 13, 1976           4,091,417         May 23, 1978         Nieson         380/232         February 23, 1977           4,104,486         August 1, 1978         Martin et al.         379/106.06         June 29, 1976           4,115,602         September 19		4,025,947	May 24, 1977	Michael	348/705	<del>                                     </del>
4,049,906         September 20, 1977         Hafner et al.         178/2C         April 21, 1976           4,052,737         October 4, 1977         Robertson et al.         725/138         July 9, 1976           4,058,830         November 15, 1977         Gulnet et al.         380/212         June 3, 1976           4,068,490         December 20, 1977         Nagel         709/227         September 10, 1975           4,068,264         January 10, 1978         Pires         380/233         July 19, 1976           4,079,419         March 14, 1978         Siegle et al.         348/732         October 29, 1975           4,081,612         March 28, 1978         Miller         370/393         July 14, 1976           4,081,753         March 28, 1978         Miller         455/158.2         December 13, 1976           4,091,417         May 23, 1978         Nieson         380/232         February 23, 1977           4,104,486         August 1, 1978         Martin et al.         379/106.06         June 29, 1976           4,112,464         September 5, 1978         Gulf et al.         380/231         May 11, 1977           4,115,602         September 19, 1978         Gulnet et al.         380/212         September 6, 1977           4,115,807         September 19		4,025,948		Loshin	380/228	<del>                                     </del>
4,049,906         September 20, 1977         Hafner et al.         178/2C         April 21, 1976           4,052,737         October 4, 1977         Robertson et al.         725/138         July 9, 1976           4,058,830         November 15, 1977         Gulnet et al.         380/212         June 3, 1976           4,068,490         December 20, 1977         Nagel         709/227         September 10, 1975           4,068,264         January 10, 1978         Pires         380/233         July 19, 1976           4,079,419         March 14, 1978         Siegle et al.         348/732         October 29, 1975           4,081,612         March 28, 1978         Miller         370/393         July 14, 1976           4,081,753         March 28, 1978         Miller         455/158.2         December 13, 1976           4,091,417         May 23, 1978         Nieson         380/232         February 23, 1977           4,104,486         August 1, 1978         Martin et al.         379/106.06         June 29, 1976           4,112,464         September 5, 1978         Gulf et al.         380/231         May 11, 1977           4,115,602         September 19, 1978         Gulnet et al.         380/212         September 6, 1977           4,115,807         September 19		4,048,619		Forman, Jr. et al.	370/485	<del>                                     </del>
4,052,737         October 4, 1977         Robertson et al.         725/138         July 9, 1976           4,058,830         November 15, 1977         Gulnet et al.         380/212         June 3, 1976           4,064,490         December 20, 1977         Nagel         709/227         September 10, 1975           4,068,264         January 10, 1978         Pires         380/233         July 19, 1976           4,079,419         March 14, 1978         Siegle et al.         348/732         October 29, 1975           4,081,612         March 28, 1978         Hafner         370/393         July 14, 1976           4,081,753         March 28, 1978         Miller         455/158.2         December 13, 1976           4,091,417         May 23, 1978         Nieson         380/232         February 23, 1977           4,104,486         August 1, 1978         Martin et al.         379/106.06         June 29, 1976           4,112,464         September 5, 1978         Gulf et al.         380/241         May 11, 1977           4,115,662         September 19, 1978         Gulnet et al.         380/212         September 6, 1977           4,120,030         October 10, 1978         Johnstine         713/190         March 11, 1977           4,161,0751         July 3, 1979 <td></td> <td></td> <td></td> <td><del>;                                     </del></td> <td>178/2C</td> <td></td>				<del>;                                     </del>	178/2C	
4,058,830         November 15, 1977         Gulnet et al.         380/212         June 3, 1976           4,064,490         December 20, 1977         Nagel         709/227         September 10, 1975           4,068,264         January 10, 1978         Pires         380/233         July 19, 1976           4,079,419         March 14, 1978         Siegle et al.         348/732         October 29, 1975           4,081,612         March 28, 1978         Hlafner         370/393         July 14, 1976           4,081,753         March 28, 1978         Miller         455/158.2         December 13, 1976           4,091,417         May 23, 1978         Nieson         380/232         February 23, 1977           4,104,486         August 1, 1978         Martin et al.         380/232         February 23, 1977           4,112,464         September 5, 1978         Gulnet et al.         380/241         May 11, 1977           4,115,662         September 19, 1978         Gulnet et al.         380/212         September 6, 1977           4,120,030         October 10, 1978         Johnstine         713/190         March 11, 1977           4,130,833         December 19, 1978         Choenet         380/220         April 11, 1977           4,161,120         July 3, 1979		4,052,737	October 4, 1977	Robertson et al.	725/138	
4,068,264   January 10, 1978   Pires   380/233   July 19, 1976				Gulnet et al.	380/212	
4,079,419         March 14, 1978         Siegle et al.         348/732         October 29, 1975           4,081,612         March 28, 1978         Hafner         370/393         July 14, 1976           4,081,753         March 28, 1978         Miller         455/158.2         December 13, 1976           4,091,417         May 23, 1978         Nieson         380/232         February 23, 1977           4,104,486         August 1, 1978         Martin et al.         379/106.06         June 29, 1976           4,112,464         September 5, 1978         Gulf et al.         380/241         May 11, 1977           4,115,662         September 19, 1978         Gulnet et al.         380/233         November 1, 1976           4,115,807         September 19, 1978         Pires         380/233         November 1, 1977           4,130,833         December 19, 1978         Choenet         380/220         April 11, 1977           4,130,833         December 19, 1978         Choenet         380/220         April 11, 1977           4,160,120         July 3, 1979         Barnes et al.         380/29         November 17, 1977           4,161,751         July 17, 1979         Ost         725/25         May 19, 1977           4,163,254         July 31, 1979         Bl		4,064,490	December 20, 1977	Nagel	709/227	September 10, 1975
4,079,419         March 14, 1978         Siegle et al.         348/732         October 29, 1975           4,081,612         March 28, 1978         Hafner         370/393         July 14, 1976           4,081,753         March 28, 1978         Miller         455/158.2         December 13, 1976           4,091,417         May 23, 1978         Nieson         380/232         February 23, 1977           4,104,486         August 1, 1978         Martin et al.         379/106.06         June 29, 1976           4,112,464         September 5, 1978         Gulf et al.         380/241         May 11, 1977           4,115,602         September 19, 1978         Gulnet et al.         380/233         November 6, 1977           4,115,807         September 19, 1978         Pires         380/233         November 1, 1976           4,120,030         October 10, 1978         Johnstine         713/190         March 11, 1977           4,130,833         December 19, 1978         Choenet         380/220         April 11, 1977           4,138,726         February 26, 1979         Girault et al.         345/113         June 29, 1977           4,161,751         July 31, 1979         Ost         725/25         May 19, 1977           4,163,254         July 31, 1979 <t< td=""><td></td><td>4,068,264</td><td>January 10, 1978</td><td><del></del></td><td>380/233</td><td><del></del></td></t<>		4,068,264	January 10, 1978	<del></del>	380/233	<del></del>
4,081,612         March 28, 1978         Hafner         370/393         July 14, 1976           4,081,753         March 28, 1978         Miller         455/158.2         December 13, 1976           4,091,417         May 23, 1978         Nieson         380/232         February 23, 1977           4,104,486         August 1, 1978         Martin et al.         380/241         May 11, 1977           4,112,464         September 5, 1978         Gulf et al.         380/241         May 11, 1977           4,115,662         September 19, 1978         Gulnet et al.         380/212         September 6, 1977           4,115,807         September 19, 1978         Pires         380/233         November 1, 1976           4,120,030         October 10, 1978         Johnstine         713/190         March 11, 1977           4,130,833         December 19, 1978         Choenet         380/220         April 11, 1977           4,160,120         July 3, 1979         Barnes et al.         380/29         November 17, 1977           4,161,751         July 17, 1979         Ost         725/25         May 19, 1977           4,163,254         July 31, 1979         Block et al.         380/233         June 15, 1978           4,168,396         September 18, 1979         Best		4,079,419	March 14, 1978	Siegle et al.	348/732	
4,081,753         March 28, 1978         Miller         455/158.2         December 13, 1976           4,091,417         May 23, 1978         Nieson         380/232         February 23, 1977           4,104,486         August 1, 1978         Martin et al.         379/106.06         June 29, 1976           4,112,464         September 5, 1978         Gulf et al.         380/241         May 11, 1977           4,115,662         September 19, 1978         Gulnet et al.         380/212         September 6, 1977           4,115,807         September 19, 1978         Pires         380/233         November 1, 1976           4,120,030         October 10, 1978         Johnstine         713/190         March 11, 1977           4,130,833         December 19, 1978         Choenet         380/220         April 11, 1977           4,160,120         July 3, 1979         Barnes et al.         345/113         June 29, 1977           4,161,751         July 17, 1979         Ost         725/25         May 19, 1977           4,163,254         July 31, 1979         Block et al.         380/233         June 15, 1978           4,168,396         September 18, 1979         Best         713/190         October 31, 1977           4,170,782         October 9, 1979         M		4,081,612	March 28, 1978	Hafner	370/393	
4,091,417         May 23, 1978         Nieson         380/232         February 23, 1977           4,104,486         August 1, 1978         Martin et al.         379/106.06         June 29, 1976           4,112,464         September 5, 1978         Gulf et al.         380/241         May 11, 1977           4,115,662         September 19, 1978         Gulnet et al.         380/212         September 6, 1977           4,115,807         September 19, 1978         Pires         380/233         November 1, 1976           4,120,030         October 10, 1978         Johnstine         713/190         March 11, 1977           4,130,833         December 19, 1978         Choenet         380/220         April 11, 1977           4,138,726         February 26, 1979         Girault et al.         345/113         June 29, 1977           4,160,120         July 3, 1979         Barnes et al.         380/29         November 17, 1977           4,163,254         July 17, 1979         Ost         725/25         May 19, 1977           4,163,255         July 31, 1979         Block et al.         380/233         June 15, 1978           4,170,782         October 9, 1979         Miller         725/14         October 23, 1977           4,171,513         October 16, 1979		4,081,753		Miller		
4,104,486         August 1, 1978         Martin et al.         379/106.06         June 29, 1976           4,112,464         September 5, 1978         Gulf et al.         380/241         May 11, 1977           4,115,662         September 19, 1978         Gulnet et al.         380/212         September 6, 1977           4,115,807         September 19, 1978         Pires         380/233         November 1, 1976           4,120,030         October 10, 1978         Johnstine         713/190         March 11, 1977           4,130,833         December 19, 1978         Choenet         380/220         April 11, 1977           4,138,726         February 26, 1979         Girault et al.         345/113         June 29, 1977           4,160,120         July 3, 1979         Barnes et al.         380/29         November 17, 1977           4,163,254         July 31, 1979         Block et al.         380/233         February 14, 1977           4,163,255         July 31, 1979         Pires         380/233         June 15, 1978           4,163,255         July 31, 1979         Pires         380/233         June 15, 1978           4,170,782         October 9, 1979         Miller         725/14         October 31, 1977           4,171,513         October 16, 1979		4,091,417	May 23, 1978	Nieson	380/232	<del> </del>
4,112,464         September 5, 1978         Gulf et al.         380/241         May 11, 1977           4,115,662         September 19, 1978         Gulnet et al.         380/212         September 6, 1977           4,115,807         September 19, 1978         Pires         380/233         November 1, 1976           4,120,030         October 10, 1978         Johnstine         713/190         March 11, 1977           4,130,833         December 19, 1978         Choenet         380/220         April 11, 1977           4,138,726         February 26, 1979         Girault et al.         345/113         June 29, 1977           4,160,120         July 3, 1979         Barnes et al.         380/29         November 17, 1977           4,161,751         July 17, 1979         Ost         725/25         May 19, 1977           4,163,254         July 31, 1979         Block et al.         380/233         June 15, 1978           4,163,255         July 31, 1979         Pires         380/233         June 15, 1978           4,170,782         October 9, 1979         Miller         725/14         October 31, 1977           4,171,513         October 16, 1979         Otey et al.         380/43         July 22, 1969           4,172,213         October 23, 1979         Ba		4,104,486			379/106.06	<del>,                                      </del>
4,115,807         September 19, 1978         Pires         380/233         November 1, 1976           4,120,030         October 10, 1978         Johnstine         713/190         March 11, 1977           4,130,833         December 19, 1978         Choenet         380/220         April 11, 1977           4,138,726         February 26, 1979         Girault et al.         345/113         June 29, 1977           4,160,120         July 3, 1979         Barnes et al.         380/29         November 17, 1977           4,161,751         July 17, 1979         Ost         725/25         May 19, 1977           4,163,254         July 31, 1979         Block et al.         380/233         February 14, 1977           4,168,396         September 18, 1979         Best         713/190         October 31, 1977           4,170,782         October 9, 1979         Miller         725/14         October 28, 1977           4,171,513         October 16, 1979         Otey et al.         380/43         July 2, 1969           4,172,213         October 23, 1979         Barnes et al.         380/29         November 17, 1977           4,186,413         January 29, 1980         Mortimer         348/473         November 14, 1977           4,200,770         April 29, 1980		4,112,464	September 5, 1978	Gulf et al.	380/241	
4,115,807         September 19, 1978         Pires         380/233         November 1, 1976           4,120,030         October 10, 1978         Johnstine         713/190         March 11, 1977           4,130,833         December 19, 1978         Choenet         380/220         April 11, 1977           4,138,726         February 26, 1979         Girault et al.         345/113         June 29, 1977           4,160,120         July 3, 1979         Barnes et al.         380/29         November 17, 1977           4,161,751         July 17, 1979         Ost         725/25         May 19, 1977           4,163,254         July 31, 1979         Block et al.         380/233         February 14, 1977           4,168,396         September 18, 1979         Best         713/190         October 31, 1977           4,170,782         October 9, 1979         Miller         725/14         October 28, 1977           4,171,513         October 16, 1979         Otey et al.         380/43         July 2, 1969           4,172,213         October 23, 1979         Barnes et al.         380/29         November 17, 1977           4,186,413         January 29, 1980         Mortimer         348/473         November 14, 1977           4,200,770         April 29, 1980		4,115,662	•	Gulnet et al.	380/212	
4,130,833         December 19, 1978         Choenet         380/220         April 11, 1977           4,138,726         February 26, 1979         Girault et al.         345/113         June 29, 1977           4,160,120         July 3, 1979         Barnes et al.         380/29         November 17, 1977           4,161,751         July 17, 1979         Ost         725/25         May 19, 1977           4,163,254         July 31, 1979         Block et al.         380/233         February 14, 1977           4,163,255         July 31, 1979         Pires         380/233         June 15, 1978           4,168,396         September 18, 1979         Best         713/190         October 31, 1977           4,170,782         October 9, 1979         Miller         725/14         October 28, 1977           4,171,513         October 16, 1979         Otey et al.         380/43         July 22, 1969           4,172,213         October 23, 1979         Barnes et al.         380/29         November 17, 1977           4,186,413         January 29, 1980         Mortimer         348/473         November 14, 1977           4,200,770         April 29, 1980         Forman et al.         380/30         September 6, 1977           4,200,913         April 29, 1980 <td< td=""><td></td><td>4,115,807</td><td>September 19, 1978</td><td>Pires</td><td>380/233</td><td>November 1, 1976</td></td<>		4,115,807	September 19, 1978	Pires	380/233	November 1, 1976
4,138,726         February 26, 1979         Girault et al.         345/113         June 29, 1977           4,160,120         July 3, 1979         Barnes et al.         380/29         November 17, 1977           4,161,751         July 17, 1979         Ost         725/25         May 19, 1977           4,163,254         July 31, 1979         Block et al.         380/233         February 14, 1977           4,163,255         July 31, 1979         Pires         380/233         June 15, 1978           4,168,396         September 18, 1979         Best         713/190         October 31, 1977           4,170,782         October 9, 1979         Miller         725/14         October 28, 1977           4,171,513         October 16, 1979         Otey et al.         380/43         July 22, 1969           4,172,213         October 23, 1979         Barnes et al.         380/29         November 17, 1977           4,186,413         January 29, 1980         Mortimer         348/473         November 14, 1977           4,200,770         April 29, 1980         Hellman et al.         380/30         September 6, 1977           4,200,913         April 29, 1980         Kuhar et al.         341/23         April 13, 1977           4,215,366         July 29, 1980 <t< td=""><td></td><td>4,120,030</td><td>October 10, 1978</td><td>Johnstine</td><td>713/190</td><td>March 11, 1977</td></t<>		4,120,030	October 10, 1978	Johnstine	713/190	March 11, 1977
4,160,120         July 3, 1979         Barnes et al.         380/29         November 17, 1977           4,161,751         July 17, 1979         Ost         725/25         May 19, 1977           4,163,254         July 31, 1979         Block et al.         380/233         February 14, 1977           4,163,255         July 31, 1979         Pires         380/233         June 15, 1978           4,168,396         September 18, 1979         Best         713/190         October 31, 1977           4,170,782         October 9, 1979         Miller         725/14         October 28, 1977           4,171,513         October 16, 1979         Otey et al.         380/43         July 22, 1969           4,172,213         October 23, 1979         Barnes et al.         380/29         November 17, 1977           4,186,413         January 29, 1980         Mortimer         348/473         November 14, 1977           4,196,310         April 1, 1980         Forman et al.         380/46         November 3, 1977           4,200,770         April 29, 1980         Kuhar et al.         341/23         April 13, 1977           4,215,366         July 29, 1980         Kuhar et al.         341/23         April 24, 1979           4,225,967         September 3, 1980         Miw		4,130,833	December 19, 1978	Choenet	380/220	April 11, 1977
4,161,751         July 17, 1979         Ost         725/25         May 19, 1977           4,163,254         July 31, 1979         Block et al.         380/233         February 14, 1977           4,163,255         July 31, 1979         Pires         380/233         June 15, 1978           4,168,396         September 18, 1979         Best         713/190         October 31, 1977           4,170,782         October 9, 1979         Miller         725/14         October 28, 1977           4,171,513         October 16, 1979         Otey et al.         380/43         July 22, 1969           4,172,213         October 23, 1979         Barnes et al.         380/29         November 17, 1977           4,186,413         January 29, 1980         Mortimer         348/473         November 14, 1977           4,196,310         April 1, 1980         Forman et al.         380/46         November 3, 1977           4,200,770         April 29, 1980         Hellman et al.         380/30         September 6, 1977           4,215,366         July 29, 1980         Kuhar et al.         341/23         April 13, 1977           4,215,370         July 29, 1980         Kirk, Jr.         375/240.01         February 22, 1978           4,225,967         September 3, 1980         <		4,138,726	February 26, 1979	Girault et al.	345/113	June 29, 1977
4,163,254       July 31, 1979       Block et al.       380/233       February 14, 1977         4,163,255       July 31, 1979       Pires       380/233       June 15, 1978         4,168,396       September 18, 1979       Best       713/190       October 31, 1977         4,170,782       October 9, 1979       Miller       725/14       October 28, 1977         4,171,513       October 16, 1979       Otey et al.       380/43       July 22, 1969         4,172,213       October 23, 1979       Barnes et al.       380/29       November 17, 1977         4,186,413       January 29, 1980       Mortimer       348/473       November 14, 1977         4,196,310       April 1, 1980       Forman et al.       380/46       November 3, 1977         4,200,770       April 29, 1980       Hellman et al.       380/30       September 6, 1977         4,200,913       April 29, 1980       Kuhar et al.       341/23       April 13, 1977         4,215,366       July 29, 1980       Davidson       380/235       April 24, 1979         4,215,370       July 29, 1980       Kirk, Jr.       375/240.01       February 22, 1978         4,225,967       September 3, 1980       Miwa et al.       455/68       January 9, 1978         4,232		4,160,120	July 3, 1979	Barnes et al.	380/29	November 17, 1977
4,163,255       July 31, 1979       Pires       380/233       June 15, 1978         4,168,396       September 18, 1979       Best       713/190       October 31, 1977         4,170,782       October 9, 1979       Miller       725/14       October 28, 1977         4,171,513       October 16, 1979       Otey et al.       380/43       July 22, 1969         4,172,213       October 23, 1979       Barnes et al.       380/29       November 17, 1977         4,186,413       January 29, 1980       Mortimer       348/473       November 14, 1977         4,196,310       April 1, 1980       Forman et al.       380/46       November 3, 1977         4,200,770       April 29, 1980       Hellman et al.       380/30       September 6, 1977         4,200,913       April 29, 1980       Kuhar et al.       341/23       April 13, 1977         4,215,366       July 29, 1980       Davidson       380/235       April 24, 1979         4,215,370       July 29, 1980       Kirk, Jr.       375/240.01       February 22, 1978         4,225,967       September 3, 1980       Miwa et al.       455/68       January 9, 1978         4,232,193       November 4, 1980       Gerard       380/36       May 3, 1978		4,161,751	July 17, 1979	Ost	725/25	May 19, 1977
4,168,396         September 18, 1979         Best         713/190         October 31, 1977           4,170,782         October 9, 1979         Miller         725/14         October 28, 1977           4,171,513         October 16, 1979         Otey et al.         380/43         July 22, 1969           4,172,213         October 23, 1979         Barnes et al.         380/29         November 17, 1977           4,186,413         January 29, 1980         Mortimer         348/473         November 14, 1977           4,196,310         April 1, 1980         Forman et al.         380/46         November 3, 1977           4,200,770         April 29, 1980         Hellman et al.         380/30         September 6, 1977           4,200,913         April 29, 1980         Kuhar et al.         341/23         April 13, 1977           4,215,366         July 29, 1980         Davidson         380/235         April 24, 1979           4,215,370         July 29, 1980         Kirk, Jr.         375/240.01         February 22, 1978           4,225,967         September 3, 1980         Miwa et al.         455/68         January 9, 1978           4,232,193         November 4, 1980         Gerard         380/36         May 3, 1978	-	4,163,254	July 31, 1979	Block et al.	380/233	February 14, 1977
4,170,782         October 9, 1979         Miller         725/14         October 28, 1977           4,171,513         October 16, 1979         Otey et al.         380/43         July 22, 1969           4,172,213         October 23, 1979         Barnes et al.         380/29         November 17, 1977           4,186,413         January 29, 1980         Mortimer         348/473         November 14, 1977           4,196,310         April 1, 1980         Forman et al.         380/46         November 3, 1977           4,200,770         April 29, 1980         Hellman et al.         380/30         September 6, 1977           4,200,913         April 29, 1980         Kuhar et al.         341/23         April 13, 1977           4,215,366         July 29, 1980         Davidson         380/235         April 24, 1979           4,215,370         July 29, 1980         Kirk, Jr.         375/240.01         February 22, 1978           4,225,967         September 3, 1980         Miwa et al.         455/68         January 9, 1978           4,232,193         November 4, 1980         Gerard         380/36         May 3, 1978		4,163,255	July 31, 1979	Pires	380/233	June 15, 1978
4,171,513         October 16, 1979         Otey et al.         380/43         July 22, 1969           4,172,213         October 23, 1979         Barnes et al.         380/29         November 17, 1977           4,186,413         January 29, 1980         Mortimer         348/473         November 14, 1977           4,196,310         April 1, 1980         Forman et al.         380/46         November 3, 1977           4,200,770         April 29, 1980         Hellman et al.         380/30         September 6, 1977           4,200,913         April 29, 1980         Kuhar et al.         341/23         April 13, 1977           4,215,366         July 29, 1980         Davidson         380/235         April 24, 1979           4,215,370         July 29, 1980         Kirk, Jr.         375/240.01         February 22, 1978           4,225,967         September 3, 1980         Miwa et al.         455/68         January 9, 1978           4,232,193         November 4, 1980         Gerard         380/36         May 3, 1978		4,168,396	September 18, 1979	Best	713/190	October 31, 1977
4,172,213         October 23, 1979         Barnes et al.         380/29         November 17, 1977           4,186,413         January 29, 1980         Mortimer         348/473         November 14, 1977           4,196,310         April 1, 1980         Forman et al.         380/46         November 3, 1977           4,200,770         April 29, 1980         Hellman et al.         380/30         September 6, 1977           4,200,913         April 29, 1980         Kuhar et al.         341/23         April 13, 1977           4,215,366         July 29, 1980         Davidson         380/235         April 24, 1979           4,215,370         July 29, 1980         Kirk, Jr.         375/240.01         February 22, 1978           4,225,967         September 3, 1980         Miwa et al.         455/68         January 9, 1978           4,232,193         November 4, 1980         Gerard         380/36         May 3, 1978		4,170,782	October 9, 1979	Miller	725/14	October 28, 1977
4,186,413         January 29, 1980         Mortimer         348/473         November 14, 1977           4,196,310         April 1, 1980         Forman et al.         380/46         November 3, 1977           4,200,770         April 29, 1980         Hellman et al.         380/30         September 6, 1977           4,200,913         April 29, 1980         Kuhar et al.         341/23         April 13, 1977           4,215,366         July 29, 1980         Davidson         380/235         April 24, 1979           4,215,370         July 29, 1980         Kirk, Jr.         375/240.01         February 22, 1978           4,225,967         September 3, 1980         Miwa et al.         455/68         January 9, 1978           4,232,193         November 4, 1980         Gerard         380/36         May 3, 1978		4,171,513	October 16, 1979	Otey et al.	380/43	July 22, 1969
4,196,310         April 1, 1980         Forman et al.         380/46         November 3, 1977           4,200,770         April 29, 1980         Hellman et al.         380/30         September 6, 1977           4,200,913         April 29, 1980         Kuhar et al.         341/23         April 13, 1977           4,215,366         July 29, 1980         Davidson         380/235         April 24, 1979           4,215,370         July 29, 1980         Kirk, Jr.         375/240.01         February 22, 1978           4,225,967         September 3, 1980         Miwa et al.         455/68         January 9, 1978           4,232,193         November 4, 1980         Gerard         380/36         May 3, 1978		4,172,213	October 23, 1979	Barnes et al.	380/29	November 17, 1977
4,200,770         April 29, 1980         Hellman et al.         380/30         September 6, 1977           4,200,913         April 29, 1980         Kuhar et al.         341/23         April 13, 1977           4,215,366         July 29, 1980         Davidson         380/235         April 24, 1979           4,215,370         July 29, 1980         Kirk, Jr.         375/240.01         February 22, 1978           4,225,967         September 3, 1980         Miwa et al.         455/68         January 9, 1978           4,232,193         November 4, 1980         Gerard         380/36         May 3, 1978		4,186,413	January 29, 1980	Mortimer	348/473	November 14, 1977
4,200,913         April 29, 1980         Kuhar et al.         341/23         April 13, 1977           4,215,366         July 29, 1980         Davidson         380/235         April 24, 1979           4,215,370         July 29, 1980         Kirk, Jr.         375/240.01         February 22, 1978           4,225,967         September 3, 1980         Miwa et al.         455/68         January 9, 1978           4,232,193         November 4, 1980         Gerard         380/36         May 3, 1978		4,196,310	April 1, 1980	Forman et al.	380/46	November 3, 1977
4,215,366         July 29, 1980         Davidson         380/235         April 24, 1979           4,215,370         July 29, 1980         Kirk, Jr.         375/240.01         February 22, 1978           4,225,967         September 3, 1980         Miwa et al.         455/68         January 9, 1978           4,232,193         November 4, 1980         Gerard         380/36         May 3, 1978		4,200,770	April 29, 1980	Hellman et al.	380/30	September 6, 1977
4,215,370         July 29, 1980         Kirk, Jr.         375/240.01         February 22, 1978           4,225,967         September 3, 1980         Miwa et al.         455/68         January 9, 1978           4,232,193         November 4, 1980         Gerard         380/36         May 3, 1978		4,200,913	April 29, 1980	Kuhar et al.	341/23	April 13, 1977
4,225,967         September 3, 1980         Miwa et al.         455/68         January 9, 1978           4,232,193         November 4, 1980         Gerard         380/36         May 3, 1978		4,215,366	July 29, 1980	Davidson	380/235	April 24, 1979
4,232,193 November 4, 1980 Gerard 380/36 May 3, 1978		4,215,370	July 29, 1980	Kirk, Jr.	375/240.01	February 22, 1978
		4,225,967	September 3, 1980	Miwa et al.	455/68	January 9, 1978
4,236,217 November 25, 1980 Kennedy 702/61 April 20, 1979		4,232,193	November 4, 1980	Gerard	380/36	May 3, 1978
		4,236,217	November 25, 1980	Kennedy	702/61	April 20, 1979

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Serial No. 08/447,712 Docket No. 5634.0127

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EXAMINER INITIAL	PATENT NUMBER TRA 4,237,484	DEMARK PATENT DATE	NAME	CLASS/ SUBCLASS	FILING DATE*
	4,237,484	December 2, 1980	Brown et al.	375/240.12	August 8, 1979
	4,237,486	December 2, 1980	Shimp	348/475	November 9, 1978
	4,245,246	January 13, 1981	Cheung	380/235	August 3, 1978
	4,247,106	January 27, 1981	Jeffers et al.	463/29	April 12, 1978
	4,250,489	February 10, 1981	Dudash et al.	340/825.02	October 31, 1978
	4,250,521	February 10, 1981	Wright	348/616	June 19, 1979
	4,250,524	February 10, 1981	Tomizawa	380/232	February 22, 1979
	4,251,691	February 17, 1981	Kakihara et al.	348/14.01	December 1, 1978
	4,253,114	February 24, 1981	Tang et al.	380/212	September 26, 1978
	4,253,157	February 24, 1981	Kirschner et al.	707/104	September 29, 1978
	4,262,329	April 14, 1981	Bright et al.	713/164	March 27, 1978
	4,264,925	April 28, 1981	Freeman et al.	725/138	August 13, 1979
	4,266,243	May 5, 1981	Shutterly	380/236	April 25, 1979
	4,275,411	June 23, 1981	Lippel	348/472	April 19, 1978
	4,283,602	August 11, 1981	Adams et al.	380/41	September 23, 1968
	4,284,976	August 18, 1981	Gable et al.	340/825.43	June 7, 1979
	4,286,281	August 25, 1981	Suzuki	386/12	September 26, 1979
	4,287,592	September 1, 1981	Paulish et al.	370/403	May 23, 1979
	4,288,809	September 8, 1981	Yabe	348/468	May 21, 1980
	4,290,141	September 15, 1981	Anderson et al.	725/24	July 2, 1979
	4,295,223	October 13, 1981	Shutterly	455/72	April 25, 1979
	4,302,771	November 24, 1981	Gargini	725/119	July 23, 1980
	4,304,990	December 8, 1981	Atalla	380/45	February 4, 1980
	4,305,131	December 8, 1981	Best	345/327	March 31, 1980
	4,306,289	December 15, 1981	Lumley	713/190	February 4, 1980
	4,306,305	December 15, 1981	Doi et al.	714/755	October 19, 1979
	4,307,446	December 22, 1981	Barton et al.	710/131	May 2, 1979
	4,310,854	January 12, 1982	Baer	348/484	August 28, 1979
	4,312,016	January 19, 1982	Glaab et al.	348/706	February 2, 1979
	4,313,132	January 26, 1982	Doles et al.	725/26	October 31, 1979
	4,314,367	February 2, 1982	Bakka et al.	370/422	January 17, 1980
	4,316,055	February 16, 1982	Feistel	380/37	December 30, 1976
	4,316,245	February 16, 1982	Luu et al.	709/106	December 7, 1978
	4,317,215	February 23, 1982	Tabata et al.	725/131	September 11, 1979
	4,318,125	March 2, 1982	Shutterly	380/236	April 25, 1979
	4,319,079	March 9, 1982	Best	713/190	January 17, 1980
	4,322,745	March 30, 1982	Saeki et al.	380/242	March 21, 1980
	4,323,921	April 6, 1982	Guillou	705/53	January 23, 1980
	4,323,922	January 6, 1982	de Toonder et al.	380/226	December 17, 1979
	4,325,078	April 13, 1982	Seatom et al.	380/230	November 20, 1979
	4,329,675	May 11, 1982	Van Hulle	725/32	September 23, 1980
	4,329,684	May 11, 1982	Monteath et al.	345/180	January 15, 1980
	4,330,794	May 18, 1982	Sherwood	380/206	February 25, 1980
	4,332,980	June 1, 1982	Reynolds et al.	370/259	May 30, 1980
	4,334,242	June 8, 1982	Mangold	386/46	January 14, 1980

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EXAMINER	PATENT NUMBER TRAI 4,336,553	PATENT PATE	1		FILING
INITIAL	4,336,553	DATE June 22, 1982	NAME den Toonder et al.	SUBCLASS 380/206	DATE*
	4,336,559	June 22, 1982	Koyama et al.	260/73.05	May 14, 1980
	4,337,480	June 29, 1982	Bourassin et al.	348/552	November 9, 1978
	4,338,628	July 6, 1982	Payne et al.		February 8, 1980
	4,339,798	July 13, 1982	<del></del>	380/213	December 19, 1979
	4,340,903	· · · · · · · · · · · · · · · · · · ·	Hedges et al. Tamura	463/26	December 17, 1979
	4,343,042	July 20, 1982	Schrock et al.	348/187	August 6, 1980
	4,347,498	August 3, 1982		725/116	June 9, 1979
	4,347,532	August 31, 1982	Lee et al. Korver	340/825.02	November 21, 1979
	4,353,088	August 31, 1982 October 5, 1982		348/565	October 14, 1980
	4,354,201	October 12, 1982	den Toonder et al. Sechet et al.	380/206	May 14, 1980
	4,360,828	November 23, 1982		380/228	June 11, 1980
	4,361,851	November 30, 1982	Briggs, Jr. et al	725/114	August 7, 1978
	4,361,877	November 30, 1982	Asip et al.	725/14	January 4, 1980
	4,364,081	December 14, 1982	Dyer et al. Hashimoto et al.	702/176	February 5, 1980
	4,365,110		<del></del>	348/617	April 16, 1981
	4,367,548	December 21, 1982 January 4, 1983	Lee et al.	380/28	June 5, 1979
	4,367,557	January 4, 1983	Cotten, Jr. et al. Stern et al.	359/125	April 10, 1980
	4,368,483	<del></del>	Liu	725/149	May 25, 1979
	4,368,486	January 11, 1983 January 11, 1983		348/617	June 22, 1981
	4,374,437	February 15, 1983	Degoulet et al.  Citta et al.	348/598 455/164.2	February 25, 1981
	4,375,579	March 1, 1983	Davida et al.	380/28	December 29, 1980
	4,375,651	March 1, 1983	Templin et al.	348/731	January 30, 1980
	4,378,470	March 29, 1983	Murto, el al.	379/93.05	July 27, 1981
	4,379,205	April 5, 1983	Wyner Wyner	380/28	March 25, 1981 June 22, 1979
	4,385,324	May 24, 1983	Shioda et al.	348/781	November 16, 1981
	4,388,643	June 14, 1983	Aminetzah	380/239	April 6, 1981
	4,388,645	June 14, 1983	Cox et al.	348/468	April 13, 1981
	4,388,664	June 14, 1983	Ishman et al.	361/93.6	August 3, 1981
	4,389,671	June 21, 1983	Posner et al.	380/235	September 29, 1980
	4,390,898	June 28, 1983	Bond et al.	380/241	March 23, 1981
	4,394,691	July 19, 1983	Amano et al.	348/734	July 30, 1981
	4,394,762	July 19, 1981	Nabeshima	714/758	January 6, 1981
	4,395,757	July 26, 1983	Bienvenu et al.	709/104	April 14, 1981
	4,396,915	August 2, 1983	Farnsworth et al.	340/870.03	March 31, 1980
	4,396,946	August 2, 1983	Bond	380/226	March 23, 1981
	4,396,947	August 2, 1983	Cheung	380/222	March 26, 1980
	4,398,216	August 9, 1983	Field et al.	380/238	September 19, 1980
	4,400,587	August 23, 1983	Taylor et al.	379/113	August 25, 1981
	4,405,942	September 20, 1983	Block et al.	380/214	March 3, 1982
	4,410,917	October 18, 1983	Newdoll et al.	360/15	September 14, 1981
İ	4,413,339	November 1, 1983	Riggle et al.	714/765	July 24, 1981
	4,415,771	November 15, 1983	Martinez	379/43	April 3, 1981
	4,422,093	December 20, 1983	Pargee, Jr.	725/115	January 27, 1983
	4,424,532	January 3, 1984	den Toonder et al.	380/226	May 9, 1983
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EXAMINER	PATENTA	PATENT	NAME	CLASS/	FILING
INITIAL	NUMBER 4 435 591	DATE	NAME	SUBCLASS	DATE*
	4,425,581	January 10, 1984	Schweppe et al.	348/510	April 17, 1981
	4,433,207	February 21, 1984	Best	713/190	September 10, 1981
	4,434,323	February 28, 1984	Levine et al.	380/260	June 29, 1981
<u> </u>	4,434,436	February 28, 1984	Kleykamp et al.	380/209	July 13, 1981
	4,434,464	February 28, 1984	Suzuki et al.	711/164	March 31, 1981
	4,439,784	March 23, 1984	Furukawa et al.	725/25	September 26, 1980
<u> </u>	4,446,519	May 1, 1984	Thomas	711/164	May 26, 1981
	4,449,246	May 15, 1984	Seiler et al.	455/9	May 2, 1980
	4,455,570	June 19, 1984	Saeki, et al.	725/92	October 13, 1981
	4,461,002	July 17, 1984	Nanko	714/798	January 19, 1982
	4,464,679	August 7, 1984	Wargo	348/510	July 6, 1981
	4,467,139	August 21, 1984	Mollier	713/181	March 12, 1981
	4,467,356	August 21, 1984	McCoy	348/385.1	September 24, 1981
	4,471,163	September 11, 1984	Donald et al.	705/55	October 5, 1981
	4,471,164	September 11, 1984	Henry	380/30	October 13, 1981
	4,472,801	September 18, 1984	Huang	370/411	March 28, 1983
	4,473,824	September 25, 1984	Claytor	340/825.27	July 22, 1983
	4,475,123	October 2, 1984	Dumbauld et al.	380/211	April 2, 1981
	4,484,218	November 20, 1984	Boland et al.	725/131	April 29, 1981
	4,486,853	December 4, 1984	Parsons	345/418	April 1, 1981
	4,492,820	January 8, 1985	Kennard et al.	379/46	October 24, 1980
	4,500,987	February 19, 1985	Hasegawa	370/462	November 23, 1982
	4,506,387	March 19, 1985	Walter	359/118	May 25, 1983
	4,513,174	April 23, 1985	Herman	711/214	March 19, 1981
	4,518,989	May 21, 1985	Yabiki et al.	725/92	September 30, 1982
	4,528,588	July 9, 1985	Lofberg	340/5.1	May 18, 1982
	4,528,589	July 9, 1985	Block et al.	380/241	February 1, 1984
	4,538,176	August 27, 1985	Nakajima et al.	725/119	November 26, 1979
	4,567,359	January 28, 1986	Lockwood	235/381	May 24, 1984
	4,580,134	April 1, 1986	Campbell et al.	345/152	November 16, 1982
	4,593,353	June 3, 1986	Pickholtz	705/55	October 26, 1981
	4,598,288	July 1, 1986	Yarbrough et al.	340/5.74	December 20, 1983
	4,599,644	July 8, 1986	Fischer	725/21	October 25, 1984
	4,611,227	September 9, 1986	Brockhurst et al.	348/468	November 22, 1982
	4,614,971	September 30, 1986	Maney et al.	348/466	January 5, 1983
	4,631,585	December 23, 1986	Wine	348/510	May 7, 1984
	4,636,851	January 13, 1987	Drury et al.	380/215	December 12, 1983
·····	4,647,974	March 3, 1987	Butler et al.	358/185	April 12, 1985
	4,677,552	June 30, 1987	Sibley, Jr.	705/37	October 5, 1984
	4,677,685	June 30, 1987	Kurisu	725/151	July 16, 1985
	4,680,797	July 14, 1986	Benke et al.	704/211	June 26, 1984
	4,682,292	July 21, 1987	Bue et al.	701/35	July 23, 1984
	4,688,105	August 18, 1987	Bloch et al.	386/38	May 10, 1985
	4,689,661	August 25, 1987	Barbieri et al.	375/240.01	June 22, 1981
	4,706,109	November 10, 1987	Murray	348/481	May 30, 1985
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Serial No. 08/447,712 Docket No. 5634.0127

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EXAMINER	PATENT	PRADEMARDATENT		CLASS/	FILING
INITIAL	NUMBER	DATE	NAME	SUBCLASS	DATE*
	4,706,282	November 10, 1987	Knowd	713/168	December 23, 1985
	4,742,516	May 3, 1988	Yamaguchi	370/312	January 10, 1986
	4,742,543	May 3, 1988	Fredericksen	380/237	July 10, 1986
	4,744,080	May 10, 1988	Brennand et al.	380/212	February 27, 1986
	4,748,619	May 31, 1988	Vigarie et al.	370/349	February 20, 1987
	4,772,887	September 20, 1988	Dunkerton	340/825.48	August 5, 1983
	4,774,583	September 27, 1988	Kellar et al.	348/585	February 6, 1985
	4,782,387	November 1, 1988	Sabri et al.	375/240.21	December 9, 1986
	4,809,267	February 28, 1989	Higuchi et al.	370/460	June 29, 1987
	4,814,756	March 21, 1989	Chauvel	345/565	January 28, 1987
	4,831,526	May 16, 1989	Luchs et al.	705/4	April 22, 1986
	4,835,777	May 30, 1989	DeLuca, et al.	714/822	January 7, 1987
	4,908,713	March 13, 1990	Levine	386/83	June 29, 1988
	4,942,616	July 7, 1990	Linstroth et al.	704/275	September 9, 1985
	4,963,994	October 16, 1990	Levine	386/83	February 23, 1990
	RE 31,182	March 15, 1983	Crager et al.	178/3	October 11, 1979
	RE 31,735	November 13, 1984	Davidson	380/235	July 26, 1982
	RE 32,326	January 6, 1987	Nagel et al.	348/463	May 19, 1983

\* If Pertinent

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EXAMINER	DOCUMENT	PUBLICATION		CLASS/	TRANSLATION
INITIAL	NUMBER	DATE	COUNTRY	SUBCLASS	YES NO
	1,556,366		UK		
	2,853,764		DE		
	2,904,981		Germany		
	3,143,627		Germany		
	60-146587		JP		
	AU 74,619		AU		
	DE 2,904,891		DE		
	DE 2338380		DE		
	DE 2918846		DE		
	DE 3,143,627		DE		
	DT 2,550,624 A1		Germany		
	DT 255,024		DT		
	EP 187,417	16-Jul-86	EP		
	EP 55674		EP	-	
	FR 79-03351	Feb-79	FR		
	GB 1,370,535		GB		
	GB 1,515,309	21-Jun-78	GB		
	GB 1554411		GB		İ
	GB 2,016,874	Feb-79	GB		
	GB 2,140,963		GB	·-··	
	GB 2034995		GB		i i



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EXAMINER	SDOCUMENTA GB 959,274	PUBLICATION	Gio	<del>ир 2600</del> CLASS/	TRANSLATION
INITIAL	CAN MB EAR	DATE	COUNTRY	SUBCLASS	YES NO
	GB 959,274		GB		
	JA 0053984	Jinno	JP		
	JP 53-11515		JP		
	JP 53-121420		JP		
	JP 55-028691		JP		
	JP 55-500886		JP		
	JP 56-51161		JP		
	JP 57-199377		JP		
	JP 59-154886		JP		
·	JP 59-50134		JP		
	JP 60-149281		JP		
	JP 61-20441		JP		
	JP 61-267474		JP		
	PL 204,525	Feb-78	PL		
	WO 80/02093		WIPO		

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Initial		Date, A	uthor, Title, Pertinent Pages, Etc.
	9/76	Gaines, B.R. and	"Minicomputers in Security Dealing," Computer, September,
		Sams, J.,	1976, pp. 6-15.
	4/79	Kazama et al.,	"Automatic storage and retreival of video taped programs", 4/79
	3/80		Transcript of Viewdata '80, first world conference on viewdata,
			videotex, and teletext, 26-28 March 1980, London.
		Benson, K. B. et	"CBS New York Video Tape Facilities"
		al.	
	1960	Brown et al.	Project SCORE," pp. 624-630, 1960.
		Burkhardt et al.	"Digitial Television Transmisson With 34 Mbit/s"
	1959	Byloff	"Automatic Control of Video Tape Equipment at NBC,
			Burbank," by the National Broadcasting Company, Inc. In
· .			1959.
		Charles Gerrish	"QUBE"- INTERACTIVE VIDEO ON THE MOVE"
	1/76	Crowther, et al.	"TELETEXT RECEIVER LSI DATA ACQUISITION AND
		G.O.	CONTROL," 1/13/76, pp 911-915
		Davidoff, Frank	"The All-Digital Television Studio," SMPTE Journal, vol. 89, No.
			6.
		Diederich,	"Electronic Image and Tone Return Equipment With Switching
		Werner DT,	System and Remote Control Receiver for Television Decoder"
		Gaucher,	"Automatic Program Recording System"
		M.W.S Barlow	"Automatic Switching in the CBC- An Update"
	1959	Marsden,	"Master Control Techniques," v 9 of the "Journal of the
			Television Society," 1959
		McArthur, David	"The television as a receive only terminal"
	·	Millar et al.	"Transmission of Alphanumeric Data by Television"
		Schober	"The WETA Teletext Filed Trial: Some Technical Concerns"
	2'	Skilton	"The Digitrol 2 - Automatic VTR Programme Control





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Examiner			
Initial			Author, Title, Pertinent Pages, Etc.
		Stern	"An Auotmated Programming Control Sysem for Cable TV"
		Yamane et al.	"System and apparatus for automatic Monitoring control of Broadcast Circuits"
		Zettl	"Television Production Handbook", second edition.
		Schiller et al.	"CATV Program Origination and Production"
	6/71	Hughes et al.	"Some Design Considerations for Home Interactive Terminals, IEEE Transaction on Broadcasting, Vol. BC-17, No. 2, June 1971.
		Kaneko et al.	"Digital Transmission of Broadcast Television with Reduced Bi Rate."
		Gautier, C.	"Automatic Program Recording Systems".
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